

1

2

CLAIMS

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

201

202

203

204

205

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

238

239

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288

289

290

291

292

293

294

295

296

297

298

299

300

301

302

303

304

305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

322

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

526

527

528

529

530

531

532

533

534

535

536

537

538

539

540

541

542

543

544

545

546

547

548

549

550

551

552

553

554

555

556

557

558

559

550

551

552

553

554

555

556

557

558

559

560

561

562

563

564

565

566

567

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612

613

614

615

616

617

618

619

620

621

622

623

624

625

626

627

628

629

630

631

632

633

634

635

636

637

638

639

640

641

642

643

644

645

646

647

648

649

650

651

652

653

654

655

656

657

658

659

660

661

662

663

664

665

666

667

668

669

660

661

662

663

664

665

666

667

668

669

670

671

672

673

674

675

676

677

678

679

680

681

682

683

684

685

686

687

688

689

690

691

692

693

694

695

696

697

698

699

700

701

702

703

704

705

706

707

708

709

710

711

712

713

714

715

716

717

718

719

720

721

722

723

724

725

726

727

728

729

730

731

732

733

734

735

736

737

738

739

740

741

742

743

744

745

746

747

748

749

750

751

752

753

754

755

756

757

758

759

760

761

762

763

764

765

766

767

768

769

760

761

762

763

764

765

766

767

768

769

770

771

772

773

774

775

776

777

778

779

780

781

782

783

784

785

786

787

788

789

790

791

792

793

794

795

796

797

798

799

800

801

802

803

804

805

806

807

808

809

810

811

812

813

814

815

816

817

818

819

820

821

822

823

824

825

826

827

828

829

830

831

832

833

834

835

836

837

838

839

840

841

842

843

844

845

846

847

848

849

850

851

852

853

854

855

856

857

858

859

860

861

862

863

864

865

866

867

868

869

860

861

862

863

864

865

866

867

868

869

870

871

872

873

874

875

876

877

878

879

880

881

882

883

884

885

886

887

888

889

890

891

892

893

894

895

896

897

898

899

900

901

902

903

904

905

906

907

908

909

910

911

912

913

914

915

916

917

918

919

920

921

922

923

924

925

926

927

928

929

930

931

932

933

934

935

936

937

938

939

940

941

942

943

944

945

946

947

948

949

950

951

952

953

954

955

956

957

958

959

960

961

962

963

964

965

966

967

968

969

960

961

962

963

964

965

966

967

968

969

970

971

972

973

974

975

976

977

978

979

980

981

982

983

984

985

986

987

988

989

990

991

992

993

994

995

996

997

998

999

1000

1001

1002

1003

1004

1005

1006

1007

1008

1009

10010

10011

10012

10013

10014

10015

10016

10017

10018

10019

10020

10021

10022

10023

10024

10025

10026

10027

10028

10029

10030

10031

10032

10033

10034

10035

10036

10037

10038

10039

10040

10041

10042

10043

10044

10045

10046

10047

10048

10049

10050

10051

10052

10053

10054

10055

10056

10057

10058

10059

10060

10061

10062

10063

10064

10065

10066

10067

10068

10069

10060

10061

10062

10063

10064

10065

10066

10067

10068

10069

10070

10071

10072

10073

10074

10075

10076

10077

10078

10079

10080

10081

10082

10083

10084

10085

10086

10087

10088

10089

10090

10091

10092

10093

10094

10095

10096

10097

10098

10099

100100

100101

100102

100103

100104

100105

100106

100107

100108

100109

100110

100111

100112

100113

100114

100115

100116

100117

100118

100119

100120

100121

100122

100123

100124

100125

100126

100127

100128

100129

100130

100131

100132

100133

100134

100135

100136

100137

100138

100139

100140

100141

100142

100143

100144

100145

100146

100147

100148

100149

100150

100151

100152

100153

100154

100155

100156

100157

100158

100159

100160

100161

100162

100163

100164

100165

100166

100167

100168

100169

100170

100171

100172

100173

100174

100175

100176

100177

100178

100179

100180

100181

100182

100183

100184

100185

100186

100187

100188

100189

100190

100191

100192

100193

100194

100195

100196

100197

100198

100199

100200

100201

100202

100203

100204

100205

100206

100207

100208

100209

100210

100211

100212

100213

100214

100215

100216

100217

100218

100219

100220

100221

100222

100223

100224

100225

100226

100227

100228

100229

100230

100231

100232

100233

100234

100235

100236

100237

100238

100239

100240

100241

100242

100243

100244

100245

100246

100247

100248

100249

100250

100251

100252

100253

100254

100255

100256

100257

100258

100259

100260

100261

100262

100263

100264

100265

100266

100267

100268

100269

100270

100271

100272

100273

100274

100275

1002

1 8. The amusement ride with cable-launched carrier as recited in claim 1, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 9. The amusement ride with cable-launched carrier as recited in claim 1, wherein:
2 the means for propelling said carrier is a high-speed winch.

1 10. The amusement ride with cable-launched carrier as recited in claim 9, further
2 comprising:
3 a controllably rotatable seat attached to said carrier.

1 11. The amusement ride with cable-launched carrier as recited in claim 10, further
2 comprising:
3 a harness attached to a locking apparatus connected to said carrier.

1 12. The amusement ride with cable-launched carrier as recited in claim 11, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 13. The amusement ride with cable-launched carrier as recited in claim 10, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 14. The amusement ride with cable-launched carrier as recited in claim 9, further
2 comprising:
3 a harness attached to a locking apparatus connected to said carrier.

1 15. The amusement ride with cable-launched carrier as recited in claim 14, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 16. The amusement ride with cable-launched carrier as recited in claim 9, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 18. The amusement ride with cable-launched carrier as recited in claim 17, further
2 comprising:

3 a controllably rotatable seat attached to said carrier.

1 19. The amusement ride with cable-launched carrier as recited in claim 18, further
2 comprising:

3 a harness attached to a locking apparatus connected to said carrier.

1 20. The amusement ride with cable-launched carrier as recited in claim 19, further
2 comprising:

3 a device for maintaining tension in said cable attached to said cable.

1 21. The amusement ride with cable-launched carrier as recited in claim 20, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

¹ 22 The author would like to thank Dr. J. M. G. Heijnen for his valuable comments on this paper.

1 24. The amusement ride with cable-launched carrier as recited in claim 19, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 25. The amusement ride with cable-launched carrier as recited in claim 24, further
2 comprising:
3 an aperture in the side of said cylinder.

1 26. The amusement ride with cable-launched carrier as recited in claim 19, further
2 comprising:
3 an aperture in the side of said cylinder.

1 27. The amusement ride with cable-launched carrier as recited in claim 18, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 28. The amusement ride with cable-launched carrier as recited in claim 27, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 29. The amusement ride with cable-launched carrier as recited in claim 28, further
2 comprising:
3 an aperture in the side of said cylinder.

1 30. The amusement ride with cable-launched carrier as recited in claim 27, further
2 comprising:
3 an aperture in the side of said cylinder.

1 31. The amusement ride with cable-launched carrier as recited in claim 18, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 32. The amusement ride with cable-launched carrier as recited in claim 31, further
2 comprising:
3 an aperture in the side of said cylinder.

1 33. The amusement ride with cable-launched carrier as recited in claim 18, further
2 comprising:
3 an aperture in the side of said cylinder.

1 34. The amusement ride with cable-launched carrier as recited in claim 17, further
2 comprising:
3 a harness attached to a locking apparatus connected to said carrier.

1 35. The amusement ride with cable-launched carrier as recited in claim 34, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 36. The amusement ride with cable-launched carrier as recited in claim 35, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 37. The amusement ride with cable-launched carrier as recited in claim 36, further
2 comprising:
3 an aperture in the side of said cylinder.

1 38. The amusement ride with cable-launched carrier as recited in claim 35, further
2 comprising:
3 an aperture in the side of said cylinder.

1 39. The amusement ride with cable-launched carrier as recited in claim 34, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 40. The amusement ride with cable-launched carrier as recited in claim 39, further
2 comprising:
3 an aperture in the side of said cylinder.

1 41. The amusement ride with cable-launched carrier as recited in claim 34, further
2 comprising:
3 an aperture in the side of said cylinder.

1 42. The amusement ride with cable-launched carrier as recited in claim 17, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 43. The amusement ride with cable-launched carrier as recited in claim 42, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 44. The amusement ride with cable-launched carrier as recited in claim 43, further
2 comprising:
3 an aperture in the side of said cylinder.

1 45. The amusement ride with cable-launched carrier as recited in claim 42, further
2 comprising:
3 an aperture in the side of said cylinder.

1 46. The amusement ride with cable-launched carrier as recited in claim 17, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 47. The amusement ride with cable-launched carrier as recited in claim 46, further
2 comprising:
3 an aperture in the side of said cylinder.

1 48. The amusement ride with cable-launched carrier as recited in claim 17, further
2 comprising:
3 an aperture in the side of said cylinder.

1 49. The amusement ride with cable-launched carrier as recited in claim 17, wherein:
2 the first end of said cable is connected to said continuous cable.

1 50. The amusement ride with cable-launched carrier as recited in claim 17, further
2 comprising:
3 a slide through which said cable moves substantially freely;
4 a transfer cable having a first end connected to said continuous cable and a second
5 end connected to said slide; and wherein:
6 the first end of said cable is attached to a structure which will hold the first end of
7 said cable substantially stationary.

1 51. The amusement ride with cable-launched carrier as recited in claim 1, wherein:
2 the means for propelling said carrier comprises:
3 a fluid-powered cylinder, which comprises:
4 a cylinder having an aperture in a first end and also having a side
5 and an interior;

6 a piston slidably mounted within said cylinder and available for
7 connection to a cable; and

8 a valve for injecting the fluid to propel the piston, said valve being
9 near the first end of said cylinder.

1 52. The amusement ride with cable-launched carrier as recited in claim 51, further
2 comprising:

3 a controllably rotatable seat attached to said carrier.

1 53. The amusement ride with cable-launched carrier as recited in claim 52, further
2 comprising:

3 a harness attached to a locking apparatus connected to said carrier.

1 54. The amusement ride with cable-launched carrier as recited in claim 53, further
2 comprising:

3 a device for maintaining tension in said cable attached to said cable.

1 55. The amusement ride with cable-launched carrier as recited in claim 54, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

1 56. The amusement ride with cable-launched carrier as recited in claim 55, further
2 comprising:

3 an aperture in the side of said cylinder.

1 57. The amusement ride with cable-launched carrier as recited in claim 54, further
2 comprising:

3 an aperture in the side of said cylinder.

1 58. The amusement ride with cable-launched carrier as recited in claim 53, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

1 59. The amusement ride with cable-launched carrier as recited in claim 58, further
2 comprising:

3 an aperture in the side of said cylinder.

1 60. The amusement ride with cable-launched carrier as recited in claim 53, further
2 comprising:

3 an aperture in the side of said cylinder.

1 61. The amusement ride with cable-launched carrier as recited in claim 52, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 62. The amusement ride with cable-launched carrier as recited in claim 61, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 63. The amusement ride with cable-launched carrier as recited in claim 62, further
2 comprising:
3 an aperture in the side of said cylinder.

1 64. The amusement ride with cable-launched carrier as recited in claim 61, further
2 comprising:
3 an aperture in the side of said cylinder.

1 65. The amusement ride with cable-launched carrier as recited in claim 52, further
2 comprising:
3 a descent valve communicating with the interior of said cylinder.

1 66. The amusement ride with cable-launched carrier as recited in claim 65, further
2 comprising:
3 an aperture in the side of said cylinder.

1 67. The amusement ride with cable-launched carrier as recited in claim 52, further
2 comprising:
3 an aperture in the side of said cylinder.

1 68. The amusement ride with cable-launched carrier as recited in claim 51, further
2 comprising:
3 a harness attached to a locking apparatus connected to said carrier.

1 69. The amusement ride with cable-launched carrier as recited in claim 68, further
2 comprising:
3 a device for maintaining tension in said cable attached to said cable.

1 70. The amusement ride with cable-launched carrier as recited in claim 69, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

1 , 71. The amusement ride with cable-launched carrier as recited in claim 70, further
2 comprising:

3 an aperture in the side of said cylinder.

1 72. The amusement ride with cable-launched carrier as recited in claim 69, further
2 comprising:

3 an aperture in the side of said cylinder.

1 73. The amusement ride with cable-launched carrier as recited in claim 68, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

1 74. The amusement ride with cable-launched carrier as recited in claim 73, further
2 comprising:

3 an aperture in the side of said cylinder.

1 75. The amusement ride with cable-launched carrier as recited in claim 68, further
2 comprising:

3 an aperture in the side of said cylinder.

1 76. The amusement ride with cable-launched carrier as recited in claim 51, further
2 comprising:

3 a device for maintaining tension in said cable attached to said cable.

1 77. The amusement ride with cable-launched carrier as recited in claim 76, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

1 78. The amusement ride with cable-launched carrier as recited in claim 77, further
2 comprising:

3 an aperture in the side of said cylinder.

1 79. The amusement ride with cable-launched carrier as recited in claim 76, further
2 comprising:

3 an aperture in the side of said cylinder.

1 80. The amusement ride with cable-launched carrier as recited in claim 51, further
2 comprising:

3 a descent valve communicating with the interior of said cylinder.

1 81. The amusement ride with cable-launched carrier as recited in claim 80, further
2 comprising:
3 an aperture in the side of said cylinder.

1 82. The amusement ride with cable-launched carrier as recited in claim 51, further
2 comprising:
3 an aperture in the side of said cylinder.

1 83. The amusement ride with cable-launched carrier as recited in claim 51, wherein:
2 the first end of said cable is connected to said piston after the first end of said
3 cable has passed through the aperture in the first end of the cylinder.

1 84. The amusement ride with cable-launched carrier as recited in claim 51, further
2 comprising:
3 a slide through which said cable moves substantially freely;
4 a transfer cable having a first end connected to said piston and a second end
5 connected to said slide; and wherein:
6 the first end of said cable is attached to a structure which will hold the first end of
7 said cable substantially stationary.

1 85. An amusement ride with cable-launched carrier, which comprises:
2 three towers with at least one of said towers having a flexible upper portion;
3 a cable suspended from each tower, each of said cables having a first end and a
4 second end;
5 a carrier for one or more participants attached to the second ends of said cables;
6 a fluid-powered cylinder, comprising:
7 a cylinder having an aperture in a first end and also having a side
8 and an interior;
9 a piston slidably mounted within said cylinder and available for
10 connection to a cable; and
11 a valve for injecting the fluid to propel the piston, said valve being near
12 the first end of said cylinder, wherein said cylinder is oriented with the valve
13 downward;

14 a slide through which said cable moves substantially freely;

15 a transfer cable having a first end connected to said piston and a second end

16 connected to said slide;

17 a pulley around which the transfer cable bends between said cylinder and said

18 slide so that said transfer cable travels upward before connecting to said slide;

19 another pulley around which said cable passes between said slide and the first

20 end of said cable;

21 a controllably rotatable seat attached to said carrier;

22 a harness attached to a locking apparatus connected to said carrier;

23 a pressurizable cylinder connected to an object which is so heavy that movement

24 of the carrier will not appreciably move the object, said pressurizable cylinder having a

25 piston slidably mounted within the cylinder and attached to the first end of said cable,

26 said pressurizable cylinder also having an aperture for connection to a source of

27 compressed fluid near an end of said cylinder, and said pressurizable cylinder having an

28 aperture in that end of the pressurizable cylinder to allow said cable to pass through the

29 end of the pressurizable cylinder;

30 a descent valve communicating with the interior of said cylinder;

31 an aperture in the side of said cylinder; and wherein:

32 the first end of said cable is attached to a structure which will hold the first

33 end of said cable substantially stationary.

34